

**SERIES:** VHB100W | **DESCRIPTION:** DC-DC CONVERTER

**FEATURES**

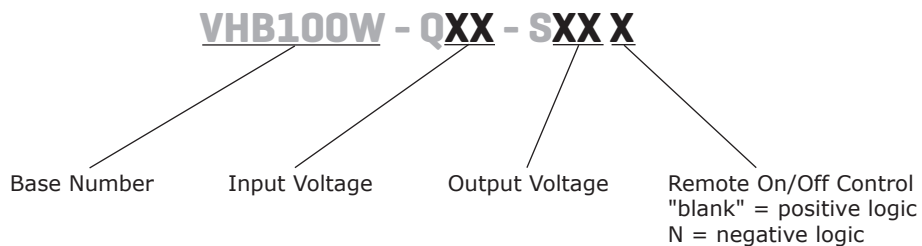
- up to 100 W isolated output
- industry standard half brick package
- 4:1 input range (9~36 V, 18~75 V)
- single output from 3.3~48 V
- 1,500 V isolation
- over current, over temperature, over voltage, and short circuit protections
- remote on/off
- efficiency up to 89%



| MODEL            | input voltage range (Vdc) | output voltage (Vdc) | output current max (A) | output power max (W) | ripple and noise <sup>1</sup> max (mVp-p) | efficiency typ (%) |
|------------------|---------------------------|----------------------|------------------------|----------------------|---|--------------------|
| VHB100W-Q24-S3R3 | 9 ~ 36                    | 3.3                  | 20                     | 66                   | 100                                       | 81.5               |
| VHB100W-Q24-S5   | 9 ~ 36                    | 5                    | 20                     | 100                  | 100                                       | 83.5               |
| VHB100W-Q24-S12  | 9 ~ 36                    | 12                   | 8.3                    | 100                  | 150                                       | 85                 |
| VHB100W-Q24-S15  | 9 ~ 36                    | 15                   | 6.7                    | 100                  | 150                                       | 86.5               |
| VHB100W-Q24-S24  | 9 ~ 36                    | 24                   | 4.17                   | 100                  | 240                                       | 86                 |
| VHB100W-Q24-S28  | 9 ~ 36                    | 28                   | 3.57                   | 100                  | 280                                       | 86                 |
| VHB100W-Q24-S48  | 9 ~ 36                    | 48                   | 2.08                   | 100                  | 480                                       | 85                 |
| VHB100W-Q48-S3R3 | 18 ~ 75                   | 3.3                  | 20                     | 66                   | 100                                       | 80.5               |
| VHB100W-Q48-S5   | 18 ~ 75                   | 5                    | 20                     | 100                  | 100                                       | 86                 |
| VHB100W-Q48-S12  | 18 ~ 75                   | 12                   | 8.3                    | 100                  | 150                                       | 86.5               |
| VHB100W-Q48-S15  | 18 ~ 75                   | 15                   | 6.7                    | 100                  | 150                                       | 87.5               |
| VHB100W-Q48-S24  | 18 ~ 75                   | 24                   | 4.17                   | 100                  | 240                                       | 88                 |
| VHB100W-Q48-S28  | 18 ~ 75                   | 28                   | 3.57                   | 100                  | 280                                       | 88                 |
| VHB100W-Q48-S48  | 18 ~ 75                   | 48                   | 2.08                   | 100                  | 480                                       | 88                 |

Notes: 1. ripple and noise are measured at 20 MHz BW with 10µF tantalum capacitor and 1µF ceramic capacitor across output

**PART NUMBER KEY**



## INPUT

| parameter                                 | conditions/description | min        | typ | max | units |     |
|---|------------------------|------------|-----|-----|-------|-----|
| operating input voltage                   |                        | 9          | 24  | 36  | Vdc   |     |
|   |                        | 18         | 48  | 75  | Vdc   |     |
| surge voltage <sup>1</sup>                | 24 V input             |            |     | 50  | Vdc   |     |
|   | 48 V input             |            |     | 100 | Vdc   |     |
| under voltage lockout                     | power up               | 24 V input | 8.8 |     | Vdc   |     |
|   |                        | 48 V input | 17  |     | Vdc   |     |
|   | power down             | 24 V input |     | 8   |       | Vdc |
|   |                        | 48 V input |     | 16  |       | Vdc |
| positive logic remote on/off <sup>2</sup> |                        |            |     |     |       |     |
| filter                                    | PI type                |            |     |     |       |     |

Notes: 1. 100 ms max  
 2. logic compatibility, open collector ref to -input  
 Module ON, >3.5 Vdc or open circuit  
 Module OFF, <1.8 Vdc

## OUTPUT

| parameter                  | conditions/description               | min | typ   | max  | units |
|----------------------------|--------------------------------------|-----|-------|------|-------|
| line regulation            | measured from high line to low line  |     |       | ±0.2 | %     |
| load regulation            | measured from full load to zero load |     |       | ±0.2 | %     |
| voltage accuracy           |                                      |     |       | ±1.5 | %     |
| transient response         | 25% step load change                 |     |       | 500  | µs    |
| adjustability <sup>3</sup> |                                      |     | ±10   |      | %     |
| switching frequency        | 100% load, input voltage range       |     | 250   |      | kHz   |
| temperature coefficient    |                                      |     | ±0.03 |      | %/°C  |

Notes: 3. trim-up: connect a resistor between the trim pin and -Sense  
 trim-down: connect a resistor between the trim pin and +Sense

## PROTECTIONS

| parameter                   | conditions/description   | min | typ | max | units |
|-----------------------------|--------------------------|-----|-----|-----|-------|
| over voltage protection     | %Vo                      | 115 |     | 140 | %     |
| short circuit protection    | continuous               |     |     |     |       |
| current limit               | % nominal output current | 110 |     | 140 | %     |
| thermal shutdown case temp. |                          |     | 105 |     | °C    |

## SAFETY AND COMPLIANCE

| parameter             | conditions/description | min   | typ   | max | units |
|-----------------------|------------------------|-------|-------|-----|-------|
| isolation voltage     | input to output        | 1,500 |       |     | Vdc   |
|                       | input to case          | 1,500 |       |     | Vdc   |
|                       | output to case         | 1,500 |       |     | Vdc   |
| isolation resistance  |                        | 10    |       |     | MΩ    |
| isolation capacitance |                        |       | 1,500 |     | pF    |
| safety approvals      | UL60950-1              |       |       |     |       |
| RoHS compliant        | yes                    |       |       |     |       |

## ENVIRONMENTAL

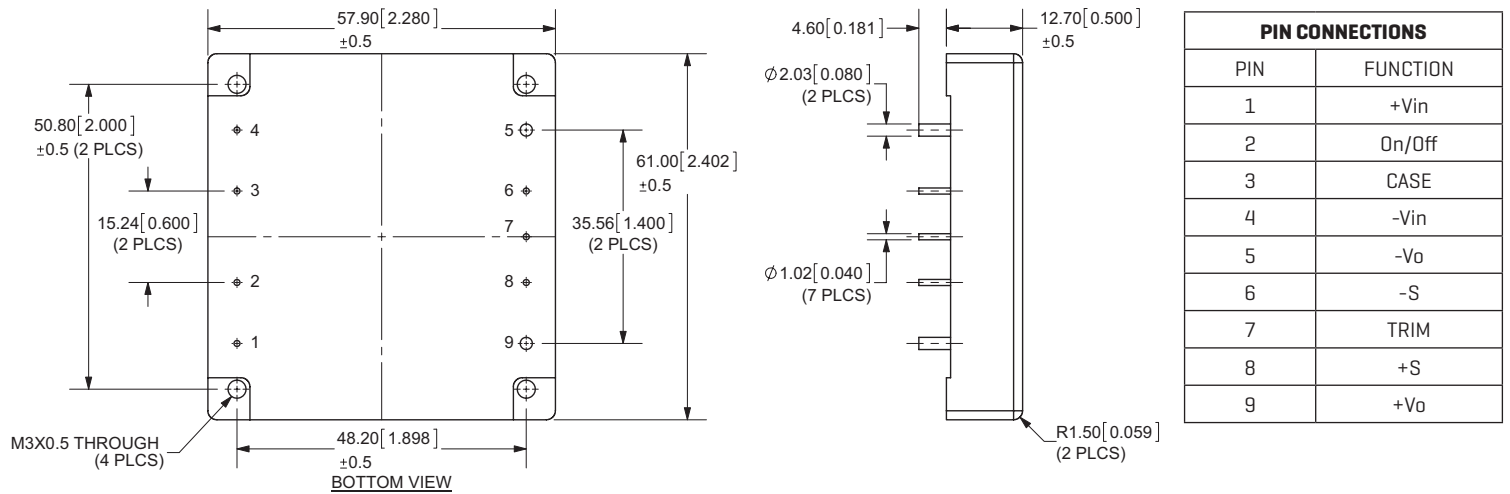
| parameter                  | conditions/description | min | typ | max | units |
|----------------------------|------------------------|-----|-----|-----|-------|
| case operating temperature |                        | -40 |     | 100 | °C    |
| storage temperature        |                        | -55 |     | 105 | °C    |
| humidity                   | non-condensing         |     |     | 95  | %     |

## MECHANICAL

| parameter     | conditions/description                      | min | typ | max | units |
|---------------|---|-----|-----|-----|-------|
| dimensions    | 57.9 x 61.0 x 12.7 (2.28 x 2.40 x 0.5 inch) |     |     |     | mm    |
| case material | aluminum                                    |     |     |     |       |
| weight        |   |     | 95  |     | g     |

## MECHANICAL DRAWING

units: mm [inches]  
 tolerance: ±0.25mm [±0.01 inches]



Note: All specifications measured at 25°C, nominal input voltage, and full load unless otherwise noted.

## REVISION HISTORY

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| rev. | description                                      | date       |
|------|--|------------|
| 1.0  | initial release                                  | 10/01/2008 |
| 1.01 | new template applied                             | 08/17/2011 |
| 1.02 | add remote on/off control to the part number key | 11/23/2011 |
| 1.03 | features updated                                 | 12/20/2011 |
| 1.04 | updated trim note, updated pin references        | 04/23/2012 |
| 1.05 | updated spec                                     | 04/01/2013 |

The revision history provided is for informational purposes only and is believed to be accurate.



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